Decision and Finding of No Significant Impact

Caribbean Tree Frog Control in the State of Hawaii

May 26, 2004

I. Introduction

The Wildlife Services program of the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS-WS) has completed an environmental assessment (EA) that analyzed potential impacts of a proposed program and alternatives to eradicate, where feasible, and otherwise to control, populations of Caribbean tree frogs in the State of Hawaii. Two species of Caribbean tree frogs, the coqui (*Eleutherodactylus coqui)* and greenhouse frog (*E. planirostris)* have recently become established in Hawaii. One or both species now exists on the islands of Hawaii, Maui, Kauai and Oahu.

The U.S. Fish and Wildlife Service (USFWS), Hawaii Department of Land and Natural Resources, University of Hawaii, College of Tropical Agriculture and Human Resources, and Hawaii Department of Agriculture (HDOA) have cooperated in the development of the EA. Based on a review of the EA, I have decided to select the Proposed Action and to issue a Finding of No Significant Impact (FONSI).

II. Background

The Caribbean frogs are considered invasive pests that have the potential to severely impact Hawaii's native ecosystems, agriculture and the quality of human life (Campbell 2001a). Frog populations have been identified in 327 sites and are rapidly increasing in number (USDA, National Wildlife Research Center (NWRC) 2002). The frog's establishment has prompted the Mayor of the County of Hawaii to issue a declaration of a State of Emergency on the Island of Hawaii (April 12, 2004), based on the frog's excessive noise, potential for impacts on native species and ecosystems, and threats to the Hawaii County's economic welfare. The Governor of the state of Hawaii is expected to follow suit. The HDOA has officially declared the coqui an agricultural pest. Immediate action is needed to control and prevent the spread of this invasive pest.

In their native range in Puerto Rico, coqui populations can reach densities greater than 8,000 individuals per acre (20,000 per hectare). Populations of this size can consume an estimated 47,500 prey per night per acre (114,000 prey per night per hectare) (Kraus et al. 1999) consisting primarily of insects.

The Caribbean tree frogs were probably introduced into Hawaii on plants imported from Florida, Puerto Rico or other Caribbean areas over the past 10 years or more. The frogs have been spread to various parts of the state through the movement of infested potted plants and other plant material or intentionally by individuals.

III. Issues

The following environmental resource issues were identified during the interagency and public involvement processes as having potential to be relevant to the proposal. These issues were used to focus the analysis and compare the impacts of the alternatives: non-target impacts including threatened and endangered species and other non-target animals; effects on vegetation; economic and social effects; and other ecological issues such as indirect effects on prey and disease vectors, soils, air quality, and aquatic environments. Relative program effectiveness was also used to help the public and decision maker compare the merits of the alternatives to determine which alternatives would best meet the objectives of the program.

IV. Decision and Rationale

The alternative courses of action (Alternatives) were developed with input from the cooperating agencies and the public, and were analyzed in the EA against the issues noted above in item III. A summary of the impacts and the reasons for selecting or not selecting the alternatives are discussed.

Alternative 1 - Proposed Action

I herein adopt the Proposed Action, Alternative 1 which will provide the most effective solution to meet the needs for action discussed in the EA, without significant impact on the environment. The proposed action combines a citric acid spray with moderate vegetation removal, and some hand capturing and mechanical control. The EA concluded that the proposed action would not be likely to adversely affect the endangered Hawaiian hoary bat, and is not a threat to other non-target vertebrates or invertebrates. Effects on vegetation are expected to be minor and may be mitigated by rinsing or rainfall. WS will coordinate with the USFWS prior to implementing any control actions in natural areas or where protected plant species may be found. Most control actions will occur in residential, commercial, and other developed settings where effects would be on nursery, landscaped, and introduced plants. The proposed action is expected to have no negative impact on public health, but would provide benefit from reducing noise effects. This alternative would provide the most benefit to Hawaii's native ecosystems by removing this invasive pest. No effects on water pH and cultural resources are expected. Only temporary and negligible effects may be seen on soils and water quality from sedimentation due to minor vegetation cutting. This alternative is expected to benefit the State's economy by removing a threat to the horticulture and nursery industry, and a noise nuisance which is affecting real estate and may affect tourism. Some individuals are opposed to frog control, but this alternative has been developed to respond to the growing need to control this invasive pest.

Alternative 2 - No Action Alternative

The "No Action" Alternative, or the current program (Alternative 2) would result in no additional action by APHIS-WS, thus there would be no additional environmental effects. This alternative was not selected because it has not been sufficient to prevent further infestations and spread of Caribbean frogs in the State of Hawaii. Further spread is expected to increase damages in Hawaii and create a greater need for action.

Alternative 3. - Non-chemical Methods

Alternative 3 was developed to address the concerns for an alternative to the chemical component and included hand and mechanical capturing of Caribbean tree frogs, vegetation removal and mulching or burning. This alternative was not selected because it would have been unlikely to adequately reduce frog populations for long term control or eradication, non-target impacts would be greater than the proposed action, and it would be likely to have restrictions to applicability in habitat of the Hawaiian hoary bat, which is found in much of the proposed project area. This alternative would have more impacts on vegetation than the proposed action, minor effects on human health from burning vegetation, mitigated disturbances to soils and water quality from bulldozing and burning, and a greater cost to individual landowners. Because it is unlikely to be as effective, it would provide less benefit to Hawaii's agriculture, real estate, ecosystem, and the well being of residents and visitors from excessive noise. Those who are opposed to frog control would still be affected since frogs would still be removed. Bulldozing would have a potential to affect historic resources thus this alternative would have required consultation with the State Historic Preservation Office if frogs are found in previously undisturbed areas or areas known to contain historic resources to determine if the proposal could affect historic resources and to adopt appropriate protective measures.

V. Public Involvement

Issues related to the proposed action were identified during an interagency meeting on July 13, 2002, where ten cooperating agencies conducted early planning and provided input to identify preliminary issues for the environmental analyses. The public outreach included an information gathering phase wherein government agencies notified potentially interested groups or individuals (representing pro-frog organizations, animal rights groups, local citizens, land owners, land managers, technical experts, and government officials). An invitation for public involvement was distributed via email network on July 17, 2002. The invitation was also published in the August 8, 2002 issue of The Environmental Notice, a semi-monthly bulletin of the State of Hawaii Office of Environmental Quality Control. APHIS-WS received nine responses from the public outreach process; five from the island of Hawaii, two from Maui and two from Oahu.

Legal notices were published for one day on January 7, 2004 in the Maui News on Maui and West Hawaii Today on the island of Hawaii and for one day on January 8, 2004 in the Honolulu Advertiser which has state-wide circulation, the Garden Island on Kauai and the Hilo Tribune Herald on the island Hawaii to solicit comments on the pre-decisional EA during a 30-day public comment period. In addition all groups or individuals expressing interest during the earlier public involvement period were sent a copy of the pre-decisional EA for review and comment.

All public comments on the pre-decisional EA were considered and some warranted additions and clarifications to the EA. The attached final EA reflects changes from the substantive public comments. This Decision Notice, FONSI and final EA are being mailed to all people who have provided input or expressed interest during any phase of the EA process. In addition, a notice of this decision and FONSI will be published in the manners identified above.

Summary of Public Comments on Pre-decision Frog Control EA with Responses

1. Final EA must include a more thorough analysis of the frog's diet in Hawaii.

We have revised the EA to include additional information on Caribbean frog diet analysis in Hawaii. See Sections 1.3, Ecosystem threats under the Need for Action and Section 1.4, Biology.

2. Present data if they are available to indicate reduced populations of native invertebrates where frogs are present.

We have discussed the threat of potential effects on native invertebrates but data are not available to show impacts on native invertebrate populations in Hawaii at this time.

3. The EA contains little evidence of impacts from frogs on tourism, real estate, agriculture, and flouriculture.

We have included specific information from the Hawaii Board of Realtors, and accounts of effects on horticultural exports. In addition, the EA now reflects that the Island of Hawaii was declared a State of Emergency in part due to threats on all these resources. The EA contains an account of noise complaints by visitors and residents.

4. The EA must include a thorough and scientific analysis of impacts of citric acid and habitat alteration on non-target species, including vertebrates and plants.

Chapter 4, environmental consequences, contains additional analysis of effects from the proposed action and alternatives on non-target animals and plants.

5. The EA must provide analysis of impacts from multiple applications of citric acid on non-target flora, fauna, and to any effects on fresh/salt water habitat.

Application of citric acid consists of one thorough application followed by spot treatments as necessary until frogs are controlled. Additional analysis in the final EA, as well as the analysis contained in the pre-decisional EA, were based on this "multiple" application protocol. Field trials on efficacy, non-target flora and fauna, and pH effects in water, on which the analysis in the EA is based, were conducted in this manner.

6. What are the mechanics of action of citric acid on frogs and non target species.

A discussion of the mechanics of action has been added to Section 4.1.6, Social and Economic impacts. The non-target effects analysis has also been expanded. See Chapter 4, environmental consequences of the proposed action.

7. The analysis lacks an Endangered Species Act Section 7 consultation.

WS has completed an informal Section 7 consultation with the USFWS. The summary of these findings is contained in Chapter 4.

8. Provide non-target effects resulting from habitat alteration. How many acres would be affected by citric acid or habitat alteration?

The number of total acres has grown and the current estimated acreage of frog infestation has been clarified in the EA. Current estimates are 3000 acres, mostly on the Island of Hawaii. Currently, most sites are located in residential and commercial properties. Chapter 4 contains discussions of the effects of the alternatives on non-target species.

9. EA must address impacts on welfare of individual target and non-target animals.

We have added a discussion of animal welfare in Chapter 4.

10. EA must examine means of preventing continued influx to Hawaii.

All foreign cargo shipments (including plants and plant parts) are currently inspected by USDA and all cargo shipments to Hawaii from the U.S. mainland are inspected by the Hawaii State Department of Agriculture. The state also requires that agricultural products and animals be declared by passengers arriving to Hawaii. Passenger baggage is inspected through canine inspections. These federal and state programs work diligently to keep invasive species out of the islands but unless they are detected they can escape visual inspections. The inspection of shipments to Hawaii is outside of the scope of this EA.

11. Why is the coqui considered an agricultural pest if the greenhouse frog is not?

The WS program has no control over the designation of the legal status of a species. The Hawaii Department of Agriculture has determined that the coqui is an agricultural pest.

12. Coquis are beneficial by eating insects and being prey to birds. Coqui population estimate at one site is inflammatory. Frogs will stabilize naturally.

We disagree based on the analysis presented in the EA.

13. Commenter refutes statement by DOH that frogs have no health benefit to humans. Daytime activities overlap with Dengue carrying mosquito. Any reduction in mosquito populations would be a benefit. Frogs have environmental and economic benefit by eating pests. Frogs may help native birds by serving as food source.

Caribbean frogs are considered by the experts to be a threat to Hawaii's native ecosystem, and do not benefit public health. The EA discusses stomach content analysis of the frogs in Hawaii. Mosquitos were not found to be part of the frog's diet. No evidence that birds locally prey on frogs.

14. The Hawaiian hoary bat may feed on coqui. Ignoring insectivorous predators of frogs has exaggerated potential for coqui over-population.

Frogs are not part of the diet of the Hawaiian hoary bat. Any predators of the frogs have not precluded their spread and infestation thus far.

15. Coqui may be beneficial by helping to eliminate invasive insect pests. Coqui could help endangered Hawaiian birds by limiting mosquito populations which carry avian malaria.

See response to comment number 13.

16. Many residents and visitors enjoy the coqui song. Statement that coqui are considered undesirable by "most" people is not supported and reflects bias.

A homeowners association representing thousands of residential lots on the island of Hawaii has drafted a resolution to remove frogs that would dispute this comment. A hotline established by NWRC receives about 5 new complaints per week. The EA acknowledges that some people prefer that the frog stay in Hawaii.

17. Negative impact on agriculture is from the quarantine, not the frogs themselves.

WS does not determine the legal status of a species. As discussed in the EA, the frog is a threat to Hawaii's agriculture.

18. Negative press and government agenda against frogs has created the real estate concerns. This is subjective. Real estate effects in Puerto Rico are positive.

The Need for Action discusses a number of serious threats to Hawaii's biological and economic well being. The viewpoint of Puerto Ricans in Puerto Rico is reflected in the EA.

19. Government eradication efforts have exacerbated the perceived noise problem.

We have included a more detailed discussion of the noise nuisance created by frogs. Noise complaints have preceded eradication efforts.

20. The brown tree snake will not need to rely on coqui frogs, thus frogs will not encourage brown tree snakes.

As the EA notes, the frogs can reach extremely high densities, thus they would provide an abundant food source, and may support brown tree snakes.

21. Sound, not environmental impact is the problem, otherwise the greenhouse frog would be considered equally. Frog is only a nuisance to some based on noise.

Noise is one factor that has contributed to the need for action to control coqui. As the EA discusses in Section 1.3, Need for Action, several factors have contributed to the need to control both species of Caribbean frogs.

22. The government should not offer frog control services at the taxpayers' expense.

As the EA notes, the Invasive Species Executive Order (EO 13112) directs Federal agencies to use their programs and authorities to prevent the spread or to control populations of invasive species that cause economic or environmental harm, or harm to human health. Other authorities are discussed in the EA in Section 1.9.1.

23. Frogs will not be eradicated and control will be ongoing public expense.

The objectives of the program are to eradicate frog populations where feasible and control populations where eradication is not feasible. The EA notes that most, but probably not all

populations of coqui are susceptible to eradication efforts because numbers are still low at most sites and because males can readily be targeted for removal, thereby halting reproduction. Greenhouse frogs will be more difficult to control or eradicate because they are cryptic and less noticeable.

24. Killing frogs and non target animals with citric acid is cruel.

A discussion of the welfare of individual frogs has been added to Chapter 4 under Social and Economic impacts of the proposed action.

25. Supports Alternative 2.

Thank you for your comment.

26. There needs to be a certification process for commercial nurseries to prevent frog and egg shipment and provide for consumer confidence.

The state of Hawaii has declared the coqui frog an agricultural pest. State of Hawaii inspectors are present at nurseries on the island of Hawaii to ensure that plants and plant products are not shipped between islands. There is no legal mechanism for ensuring that plants are free of frogs when they are shipped to the U.S. mainland. Movement of plants and plant products on island is not restricted and is virtually impossible to enforce. The proposed action targets control activities at nurseries to reduce the potential for on island dispersal. Certification or other assurances that a commodity is not infested with frogs is outside of the scope of the EA.

VII. Finding of No Significant Impact

A careful review of the EA indicates that there will not be a significant impact on the quality of the human environment as a result of this proposal. I agree with this conclusion, and therefore, determine that an Environmental Impact Statement (EIS) will not be prepared. This determination is based on consideration of the following factors:

1. The proposed activities may occur in localized areas wherever Caribbean frogs populations are found. These sites are located on the islands of Hawaii, Maui, Kauai and Oahu, but may include other islands within the State of Hawaii. The proposed activities are not national or regional in scope.

2. The proposed activities will not significantly affect public health and safety. Citric acid solution used to control Caribbean frogs is highly target specific and is not a threat to public safety.

3. The proposed activities will not have an impact on unique characteristics of the geographic area such as historical or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecological critical areas. The nature of the methods proposed for alleviating damages are not likely to permanently affect the physical environment. Effects on vegetation would be minor and temporary.

4. The effects on the quality of the human environment of the proposed activities are not highly controversial. Although some people are opposed to some aspects of frog control, the methods and impacts are not controversial among experts.

5. The possible effects of the proposed activities on the quality of the human environment are not highly uncertain and do not involve unique or unknown risks.

6. The proposed activities do not establish a precedent for actions with future significant effects or represent a decision in principle about a future consideration.

7. There are no significant cumulative effects identified by this assessment. All frog removal will be coordinated with the USFWS and DLNR, HDA, and CTAHR.

8. The proposed activities will not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places nor will it cause a loss or destruction of significant scientific, cultural, or historical resources.

9. The proposed activities will fully comply with the Endangered Species Act of 1973, as amended. The proposed activities would not be likely to affect non target Federal or State listed threatened and endangered species. The USFWS concurred that the proposed action would not be likely to adversely affect the Hawaiian hoary bat and would not be likely to affect listed plants or have adverse effects on invertebrates. Further coordination will be done with the USFWS when and if natural areas are

targeted for control to ensure that this finding is still valid. The proposed action is likely to benefit natural ecosystems by removing an invasive threat.

10. There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels for routine operations.

11. The proposed activities will not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. APHIS-WS is authorized under Federal and Hawaii law to remove invasive pests.

For additional information concerning this decision, please contact:

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Date

encl: EA

References in encl.